

SCOTCH SCENERY AND GEOLOGY.¹

THE five-and-thirty years which have elapsed since the first edition of this work appeared have witnessed great advances in certain departments of geology, especially those which are all-important in that of Scotland. In 1865 the northern and central Highlands were confidently asserted to be metamorphosed Silurian sediments, and the complexities of the southern uplands were unsuspected. Now the secret of the Highlands and the mystery of the Lowlands have been discovered, thanks mainly to Prof. Lapworth, and although riddles yet remain unsolved in the former, particularly near the southern border, the members of the Survey can work

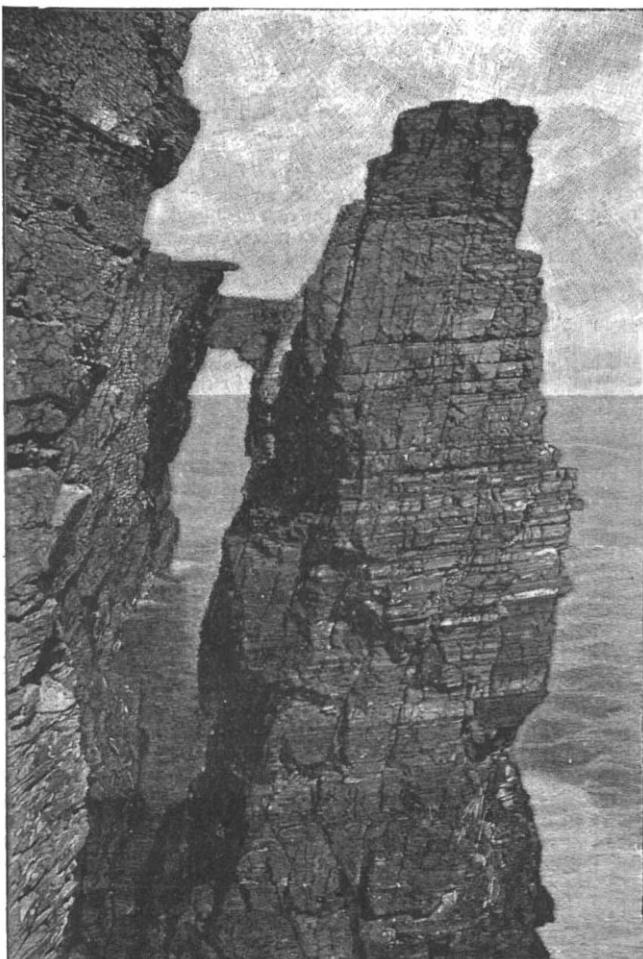


FIG. 1.—Brig o' Trams Wick. (Cliffs of Old Red Flagstone, illustrating bedding, joints and weathering.)

with confidence on their leading principles of interpretation. Even since 1887, the date of the second edition, no small advances have been made, so that we are not surprised to read that the present edition has been thoroughly revised and considerably enlarged. Since the first one, in fact, the greater part of the book has been rewritten, and so much new matter incorporated that we soon lose our way in trying to compare the two volumes page by page. In some respects there are

¹ "The Scenery of Scotland viewed in Connection with its Physical Geology." By Sir Archibald Geikie. Third edition. With four maps and numerous illustrations. Pp. xxii + 540. (London: Macmillan and Co. Ltd., 1901.) Price 10s. net.

omissions, for several points, open to debate in 1865, may now be taken for granted; while on others, opinions then commonly entertained are now repudiated. For instance, we are no longer told that the greywacke and shale of the southern uplands have been in some places changed into serpentine, felstone or granite.

But, though many disputed points are now settled, others still remain. Personally, we should not assume that an ice-sheet had crossed from Scandinavia to the eastern coast of England, or had deposited the boulder clay on the northern heights of London; we should not have left, without fuller discussion, the possibility of the larger lake basins being mainly formed by earth flexures after the valleys had been excavated; nor should we have so readily accepted the parallel roads of Lochaber as produced on the shores of lakes the waters of which were retained by dams of ice. But time will settle these disputes, as it has settled, during the last quarter of a century, differences yet more fundamental. Enough to say that the new edition of "The Scenery of

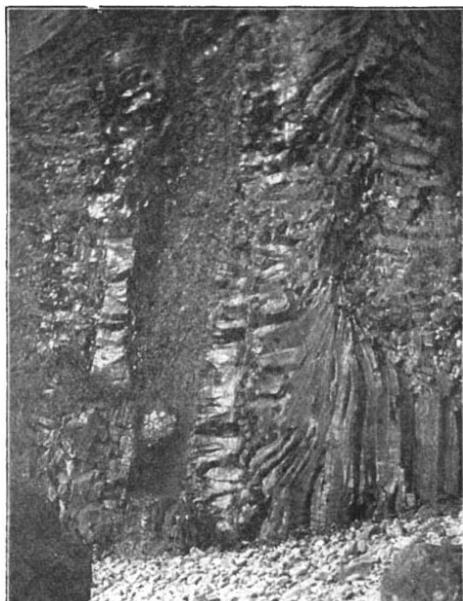


FIG. 2.—Erect Coniferous tree in basalt, Grilon, Isle of Mull.

Scotland" ought to be the companion of every one who does not visit the country merely to kill animals or to say he has been there. The itineraries at the end, with their references to the volume, and the four maps, bringing out so clearly the geology and physical features, will teach the traveller, pleasantly and as easily as may be, to interpret the works of nature in that wonderful land.

The excellent illustrations—much more numerous and far better executed than those in the first edition—of which we give specimens, will greatly help the learner. Besides this, the book, though so much enlarged, has not lost its original literary charm. We have always considered the first edition to rise even beyond the high level which the author is wont to maintain, and so took up this with some apprehension that, as often happens in real life, the child had lost its beauty in growing up. A change there has been; the book has reached its full stature but retains its attractiveness, while it has increased in power. Hence, in congratulating Sir Archibald Geikie

on this appropriate close to his more professional work, we express an earnest hope that it will be not a few years before the inevitable *finis* is written on his scientific and literary career.

T. G. B.

DINNER TO SIR ARCHIBALD GEIKIE.

THE complimentary dinner to Sir Archibald Geikie on May 1, provided a means of giving public expression to the regard in which he is held, not only in the scientific world, but also by leaders in other branches of intellectual activity. The representative character of the dinner was very noteworthy, as will be seen from the following list of those present :—

Rt. Hon. Lord Avebury, Sir Archibald Geikie, Sir G. G. Stokes, Bart., Sir F. Abel, Bart., Major-General Sir J. Donnelly, Admiral Sir W. Wharton, Sir John Evans, Sir Norman Lockyer, Sir Henry Craik, Sir John Murray, Sir Michael Foster, Sir William Turner, Sir Henry Howorth, Sir Henry Roscoe, Sir Lauder Brunton, Major-General Festing, C.B., S. Spring-Rice, C.B., Digby Pigott, C.B., Major-General McMahon, Colonel Johnston, Colonel Bushe, Major Craigie, Rev. Prof. Bonney, Rev. Prof. Wiltshire, Prof. T. McK. Hughes, Prof. Sollas, Prof. Ray Lankester, Prof. C. le Neve Foster, Prof. J. Geikie, Prof. E. Hull, Prof. Joly, Prof. Jack, Prof. Corfield, Prof. Lapworth,

the various learned societies. Letters, telegrams and addresses of felicitation were received from all parts of Europe and America. The following telegram from Christiania was read by the chairman : "Also from Norway's mountains an echo of the cheers for the master of English geology—Brøgger, Helland, Nansen, Reusch, Vogt."

Lord Avebury, in proposing the health of the guest of the evening, said :—

Sir Archibald was educated at the Royal High School and University of Edinburgh, which must indeed be very proud of him. He commenced his official career in 1855, when, at the early age of nineteen, he was appointed to a post on the Geological Survey, and in 1867 was made director for Scotland. In 1871 he became professor of geology at Edinburgh, and held the post till 1881, when he resigned it on his appointment as director-general of the Geological Survey and director of the Museum of Practical Geology in Jermyn Street, which he has since held with credit to himself and great advantage to geological science. Every one would admit (1) that the Geological Museum was a model museum, (2) that the Geological Survey has been admirably managed and that Sir Archibald has organised a splendid staff, (3) that the maps and memoirs of the Geological Survey are admirable contributions to science and an honour to all concerned.

Sir Archibald was one of the first field geologists to realise the value of microscopic sections of rocks, and under his superintendence some thousands of slides were made and added to the

Jermyn Street Museum. Under his able successor, whom we all congratulate on his appointment, we may be sure that this branch of the science will not be neglected.

Besides his official duties Sir Archibald has contributed to the progress of science by much original work, comprising nearly 100 separate memoirs; to scientific education by his primers and text-books, which are models of clearness; to scientific literature by his admirable "Text-book of Geology," his "Geological Sketches at Home and Abroad," "Founders of Geology," "Memoir of Ramsay," "Life of E. Forbes," "Life of Murchison," &c.

Others also of his books are important as contributions to science, and also in rendering it more accessible and more interesting to the general reader, such as his charming "Scenery of Scotland" and "The Ancient Volcanoes of Britain." These seem to me models of what such books should be, combining, as they do, scientific accuracy with a love of scenery, and the power of description in happy and expressive words, for Sir Archibald combines with the

striking qualities of a geologist those of an enthusiastic lover of nature. He is an artist in two senses, both with pen and pencil, for his sketches add much to the vividness and clearness of his writings.

Our countrymen have not always received fair play from foreigners, but I am happy to say that, among men of science at any rate, the most friendly and harmonious relations exist; we cordially acknowledge the splendid services they have rendered to science, and recognise that, in this respect at any rate, our international relations are pleasant and harmonious. For this also we are greatly indebted to Sir Archibald Geikie.

Sir Archibald is now retiring from his official duties, and the additional leisure which he will enjoy will in great measure, we may be sure, be devoted to the prosecution of geological research.

He has received many well-deserved honours. He was made F.R.S. before thirty; has been vice-president and foreign secretary of the Royal Society and received a Royal Medal; also the Macdougal-Brisbane Medal of the Royal Society of Edinburgh, and the Wollaston and Murchison Medals of the Geological Society. He is an associate of most of the chief academies of Europe and America, D.C.L. of Oxford, D.Sc. of Cambridge and Dublin, and LL.D. of Edinburgh and St. Andrews. He received the honour of knighthood in 1891.

But it is not merely to do honour to a great geologist that we



FIG. 3.—Rock terraces of old sea margins, Isle of Jura.

Prof. Watts, Prof. Seeley, Prof. Garwood, Prof. T. Groom, Prof. G. A. J. Cole, Prof. W. Galloway, Prof. H. Bauerman, Prof. R. A. Gregory, Prof. Evan Small, Dr. F. Moreno, Dr. W. Blanford, Dr. P. L. Sclater, Dr. Scharff, Dr. F. Parsons, Dr. George Ogilvie, Dr. Tempest Anderson, Dr. Horace Brown, Dr. Scott Keltie, Dr. Hugh R. Mill, Dr. J. W. Evans, Phipson Beale, K.C., H. Arnold Bemrose, J. E. Bartholomew, E. Best, F. Best, C. Borchgrevink, B. H. Brough, G. L. Craik, C. Fox-Strangways, Roderick Geikie, E. Greenly, George Griffith, A. Harker, R. S. Herries, T. V. Holmes, W. H. Hudleston, R. L. Jack, D. A. Louis, J. E. Marr, F. Macmillan, G. A. Macmillan, H. W. Monckton, George Murray, E. T. Newton, Grant Ogilvie, J. Parkinson, F. W. Rudler, A. Strahan, H. J. Seymour, J. J. H. Teall, C. Tookey, W. Whitaker, H. B. Woodward, Martin Woodward.

The list shows that the different public departments with which the Geological Survey is most closely connected were well represented, including the Treasury, Admiralty, Board of Education, Local Government Board, Board of Agriculture, Ordnance Survey, Scottish Education Office, Stationery Office and British Museum. There were likewise present the professors of geology in London, Oxford, Cambridge, Edinburgh, Dublin and Birmingham, together with numerous other Fellows of